



IDEM's Surface Water Quality Assessment Program

E. coli Monitoring Program

Program Objective

The objective of this program is to determine the ambient concentrations of bacterial contamination in the surface waters in Indiana. *E. coli* monitoring can be an important tool for determining the safety of swimming and wading in streams and lakes. This data will provide benchmark information for long-term trend analysis along with a broad scale overview of water quality. IDEM will gain a better understanding of fecal contamination in surface waters in sampled watersheds and how that contaminant affects major water basins.

This type of monitoring helps to locate sources of contaminants, which are often diverse and widespread. The *E. coli* monitoring program provides supportive information for the Watershed Monitoring Program, (Fact Sheet IDEM 032/01/001/1998) and for development of models to assess Total Maximum Daily Loads (TMDLs, Fact Sheet IDEM 032/01/018/1999) to nonpoint sources in Indiana public and recreational waters.

The project provides for a mobile laboratory to facilitate *E. coli* testing to eliminate the necessity of transporting samples to distant contract laboratories within a six-hour holding time. A converted van provides IDEM staff with work space containing storage for samples, supplies for Colilert® testing, and equipment for collecting, preparing, incubating, reading, and disposing of up to 40 samples per day. The use of the mobile laboratory allows staff to complete the analyses in the field, thereby increasing the number of tests performed.

Program Description

Media:	Surface Water: rivers, streams and lakes
Study Area:	Statewide
Site Selection Type:	Sites selected are known recreational and public access areas. Non-point sources are surveyed from bridges.
Sampling Sites:	Site identification information from: County Health Department surveys. In 2001, 100 sites are to be surveyed by the mobile laboratory in the West Fork of the White River and Patoka River Basins.
Sampling Frequency:	Each location is sampled five times equally spaced over a 30-day period.
Data Collected:	Colony forming units of <i>Escherichia coli</i> bacteria per 100 ml of surface water. Method 9213D-SM and Method 9223-SM, Enzyme Substrate Coliform Test to derive a Most Probable Number (MPN) from charts provided by the manufacturer.

Program Participants

This program is operated through the sampling and analysis efforts of the Special Projects Work Group, Survey Section, IDEM Office of Water Quality, Assessment Branch with additional efforts by

1. Toxicology and Chemistry Section, TMDL work Group
2. Interagency Taskforce on *E. coli*
3. Indiana State Department of Health Laboratory
4. Private laboratories under contract to the State of Indiana

Program Product(s)

- Report: Concentrations of Escherichia Coli in Surface Water in the Great Lake Watersheds of Indiana, June –October 2000
- In Support of: Surface Water Quality Monitoring Strategy, The Indiana Water Quality Reports to USEPA Region 5, the TMDL program, and the Interagency Taskforce on *E. coli*.

Technical Notes

1. Test Method 9223-SM Enzyme Substrate Coliform Test at Data Quality Level 3.
2. Idexx Quanti-tray 2000™ MPN Method, Colilert Test® at Data Quality Level 3.
3. Temperature, pH, dissolved oxygen, conductivity, and turbidity analyzed in the field.

Contact Information

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